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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,193	12/05/2000	Katsuhisa Yuda	11P348157	6697

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EXAMINER
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ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/729,193

Applicant(s)

YUDA, KATSUHISA

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-5, 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, 4-5 and 7-10 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, fails to provide support for the newly added limitation of "wherein the first gas and the second gas do not intermix within the hollow structure".

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over NEC Corp., JP 11-168094 in view of Kuthi et al., U.S. Patent 6,106,663 or Tatsuo et al., JP 03-197684.

With respect to claim 1, NEC Corp., shows in fig. 5, the invention substantially as claimed including a plasma CVD apparatus comprising a substrate processing zone 10 with a deposition substrate 4 disposed therein, a plasma generating zone 6 for generating plasma of first gas; and a plasma confining electrode 29, having a hollow structure, for separating the substrate processing zone and the plasma generating zone, and confining the first gas passed through the inlet 5, and having holes for passing first gas containing neutral radicals from the first gas plasma such that the first gas is uniformly supplied to the substrate processing zone, wherein: the plasma confining electrode has holes for introducing a second gas into the substrate processing zone to form a desired film on the deposition substrate by gas phase chemical reaction between the first gas containing neutral radicals and the second gas. With respect to the plasma confining electrode with the holes for introducing the second gas into the substrate processing zone being vertically spaced apart from the deposition substrate by a distance not greater than 1500 times the mean free path of the blend gas of neutral radicals and the second gas, note that in figure 27 the reference discloses that the spacing between the deposition substrate and the plasma confining electrode is less than 120 millimeters. Furthermore, the reference discloses that the distance can be just 0-60 mm (see paragraphs 0094-0098 of the English translation).

With respect to claim 4 NEC Corp. shows, in figs. 1-4, the invention substantially as claimed including a plasma CVD apparatus comprising a substrate processing zone 10 with a deposition substrate 4 disposed therein, a plasma generating zone 6 for generating plasma of first gas, and a plasma confining electrode 11 for separating the

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substrate processing zone and the plasma generating zone and confining the first gas passed through the inlet 5 and having holes for passing first gas containing neutral radicals from the first gas plasma such that the first gas is uniformly supplied to the substrate processing zone, wherein: the plasma CVD apparatus further comprises a gas introducing member 24 (see Figure 4) disposed between the plasma confining electrode member 11 and the deposition substrate 4, having a hollow structure, and having a plurality of holes through which second gas is introduced into the substrate processing zone to form a desired film on the deposition substrate by gas phase chemical reaction between the first gas containing neutral radicals and the second gas; the gas introducing member is vertically spaced apart from the substrate processing zone (see abstract and the figures). With respect to the gas introducing member with the holes for introducing the second gas into the substrate processing zone being vertically spaced apart from the deposition substrate by a distance not greater than 1500 times the mean free path of the blend gas of neutral radicals and the second gas, note that in figure 27 the reference discloses that the spacing between the deposition substrate and the gas introducing member is less than 120 millimeters. Furthermore, the reference discloses that the distance can be just 0-60 mm (see paragraphs 0094-0098 of the English translation).

Additionally, note that the reference discloses that the first gas and the second gas do not intermix within the hollow structure (see, for example, paragraphs 0032, 0036, 0043 and figures 3, 4, 6, 9, 10).

NEC Corp. does not expressly disclose either that the plasma confining electrode accommodates horizontal gas dispersion plates within the hollow structure (claim 1) or that the gas introducing member accommodates horizontal gas dispersion plates within the hollow structure (claim 4). Kuthi et al., U.S. Patent 6,106,663 discloses horizontal gas dispersion plates 122 within a hollow gas introducing member electrode 114 (see Fig. 1B and col. 1-lines 53-67). Alternatively, Tatsuo et al. discloses horizontal gas dispersion plates 21 within a hollow gas introducing member where both first and second gases interact (see abstract and fig. 2). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of NEC Corp. so as to include the horizontal gas dispersion plates within the hollow structure so as to, for example, introduce the second gas into the substrate processing zone as taught by Kuthi et al. and Tatsuo et al. because this will allow for more uniform flow of gas to the processing region.

With respect to claims 7-8, note that second gas is a neutral gas, the plasma confining electrode has horizontal upper and lower surfaces and vertical end surfaces, the lower surface has the holes for introducing the neutral gas into the substrate processing zone and the plasma confining electrode has a neutral supply line connection at one of the vertical end surfaces to allow the neutral gas to be supplied from the neutral gas supply line via the vertical end surface into the hollow structure of the plasma confining electrode (see, for example, paragraphs 0032, 0043 and figures 4 and 10). Regarding claims 9-10, note that the reference further discloses, in the embodiment of fig. 24, a gas introducing member having two gas supply line

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connections, one of the supply line connections at each of the two vertical end surfaces. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of NEC Corp., so as to comprise a gas introducing member having two gas supply line connections, one of the supply line connections at each of the two vertical end surfaces, because such structure is known and used in the art for a better and more uniform distribution of the gas.

### ***Response to Arguments***

Applicant's arguments filed 11/19/03 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that the proposed modifications are not viable. However, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivations are clearly laid out in the above rejections.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Luz L. Alejandro  
Primary Examiner  
Art Unit 1763

January 29, 2004